

REMARKS

Regarding the information disclosure statement, the applicants submit that a proper concise explanation of the relevance of each foreign reference has been filed with the U.S. Patent and Trademark Office as evidence by the enclosed postcard copy stamped March 11, 2002.

Apparently, this submission was not properly entered into the file of the application. Accordingly, in view of this submission of the brief description of non-English prior art, the applicants respectfully request consideration by the Examiner of the art cited which has been listed on the PTO disclosure form 1449 and received by the patent office with the filing of the patent application as evidenced by the "crossed-out" copy of the IDS form accompanying the Office Action mailed March 30, 2004.

The Examiner has called for substitute specification, however, the applicants have extensively amended the specification with the present amendment to conform the present application to conventional U.S. Patent Practice. No new matter has been added by the present amendment inasmuch as the description of the apparatus as originally found in the application on page 4, beginning with the last paragraph.

Applicants submit that an adequate description of various stages of the burning chamber are well known in the art and corresponding to any burner which would inherently have a startup phase (I), a security phase (II), a stabilization phase (III), and an operating phase (IV).

Amendment of the drawings has been made to overcome the Examiner's objections thereto. Specifically, Figure 2 has been labeled (prior art) and the abscissas and ordinates of Figures 1 and 2 have been labeled.

In addition, new Figure 3 is presented outlining, in blocked diagram form, the disclosure originally presented in the specification on page 4, last paragraph. Accordingly, no new matter has been added by providing a drawing complimenting the original specification.

In addition, the specification has been amended to coordinate the newly added drawing to the specification by the insertion of appropriate character references for components originally recited in the specification.

In view of the Examiner's objection to the claims and rejection under 35 USC 112, second paragraph, original claims 1-8 have been cancelled and new claims 9-15 presented for consideration by the Examiner.

Accordingly, the Examiner's rejection of the claims under 35 USC 112, second paragraph, and under 35 USC 101 are moot.

A rejection of the claims 1-5 under 35 USC 103(a) are traversed on the basis of the amended claims.

The Examiner relies on the applicant's admitted prior art. However, Marran (U.S. Patent 5,424,554) has not been fully analyzed. The applicant's admitted prior art is

disclosed by Figure 2 of the patent application. As shown, the darkness threshold $B_{\min IV}$ which is applied to the operation phase IV is higher than the luminance threshold $B_{\max I}$ of the starting phase.

The inventors have realized that blue flame burners tend to burn with a highly luminant yellow flame shortly after ignition. The yellow flame then turns to a pale blue flame which does not emit that much light as does the yellow flame. Consequently, a low darkness threshold $B_{\min IV}$ is necessary. This low darkness threshold, however, is not appropriate during the yellow burning phase. In accordance with the present invention, the darkness threshold $B_{\min III}$ is increased during the yellow burning cycle III as illustrated in Fig. 1.

This measure was neither to be taken from nor hinted to by Marran, referring to columns 6 and 7. Marran considers two different operating modes. The first mode is called standby cycle. The second mode is called heating cycle. The heating cycle is dominated by operating burners. The standby cycles, however, involve merely short instances of operation of the burners, referring to column 6, line 66 to col. 7, line 7. Due to merely short heating cycle during standby, the system temperatures are lower during standby cycles. The burner element surrounding the flame does not have a chance to come up to a stabilization temperature. Consequently, the light intensity is radiated by burner flame, is lower and irregular.

Consequently, the teaching of Marran is that short burner's bursts lead to lower temperatures and lower light

intensities. When applied to applicant's admitted prior art, someone having ordinary skill in the art is driven to lower the darkness threshold after ignition of the burner due to the lower temperatures of the burner element immediately after ignition. The pressing invention, however, teaches the opposite. In accordance with the present invention, the darkness threshold immediately after ignition should be higher than later on. The threshold during cycle III is raised rather than lowering it as taught to by Marran.

The Examiner has overlooked that the inventive step resides in the fact that the present invention teaches away from the cited prior art and created a new and independent method for monitoring a flame, in particular a blue flame. In doing so, the present invention overcomes the special difficulties which arise from the change of the color of the flame after ignition.


In view of the arguments hereinabove set forth and amendment to the claims and specification, it is submitted that each of the claims now in the application define patentable subject matter not anticipated by the art of record and not obvious to one skilled in this field who is aware of the references of record. Reconsideration and allowance are respectively requested.

Respectfully submitted,



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WALTER A. HACKLER
REG. NO. 27,792



RECEIVED IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: Marco Techt et al.
Serial No.: 10/019,373
Filed: 12/26/2001
For: MONITORING DEVICE FOR OIL BURNERS
File# 2872

RE: Non-English Prior Art

Enclosure: Submittal of Brief Description of
Non-English Prior Art; Response; Postcard

Mailed: March 1, 2002

JCO7 Rec'd PCT/PTO 11 MAR 2002



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicant: MARCO TECHT et al.) Examiner
Serial No.: 10/019,373) Unknown
Filed: 12/26/2001) Group Art
For: MONITORING DEVICE FOR OIL) Unknown
BURNERS)

March 2002

SUBMITTAL OF BRIEF DESCRIPTION OF
NON-ENGLISH PRIOR ART

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Enclosed herewith is a Brief Description of Non-English
Prior Art for the hereinabove referenced patent application.

The described art was listed in an Information Disclosure
Citation (PTO-A820) filed with the application.

Please enter the enclosed papers into the file of the
subject application.

Respectfully submitted,

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Brief Description of non-English Prior Art

DE 196 50 972 A1 discloses a method for monitoring and controlling burning processes by means of radiation measurement by sensor detection of at least one spectral region of a flame, linkage of the selectively reinforced signals with empirically determined method constants, evaluation and use of the signals as actuating variable for regulation and monitoring of the burning process with the following steps:

for suppressing at first infrared radiation

- a) evaluation of the different frequency portions in the useful and interfering signal for suppressing the interfering signal,
 - b) thereby the infrared portion (interfering signal) is reproduced in the measuring signal by a slowly changing DC signal,
 - c) wherein the light emission of the flame (10) as useful signal contains frequency portions between 100 and 10000 Hz,
 - d) such that separation of disturbances in the measuring signal is carried out by corresponding lower and upper limiting frequency of the signal processing, and moreover for increasing the signal-noise-ratio
 - e) detection of the flame (10) through evaluation of a predetermined number of measuring periods of a defined length and
 - f) thereby detecting in each measuring period the peak value of the respective signal and detecting for this period "FLAME ON" (9) by a reference value,
 - g) a "FLAME ON" state is declared as valid only if the peak value of the majority of measuring periods is above the reference value,
- wherein finally for suppressing potential false alarm sources
- h) yellow and blue burners are differentiated by discrimination of amplitude and/or frequency portions in the detected signal.

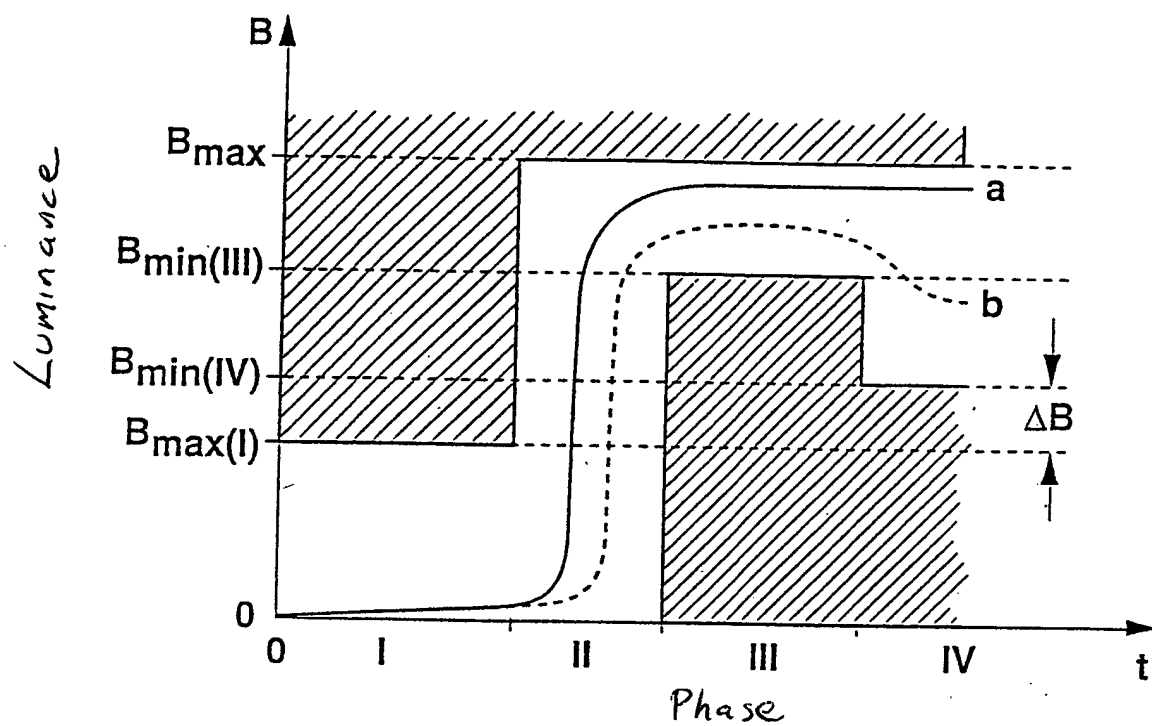
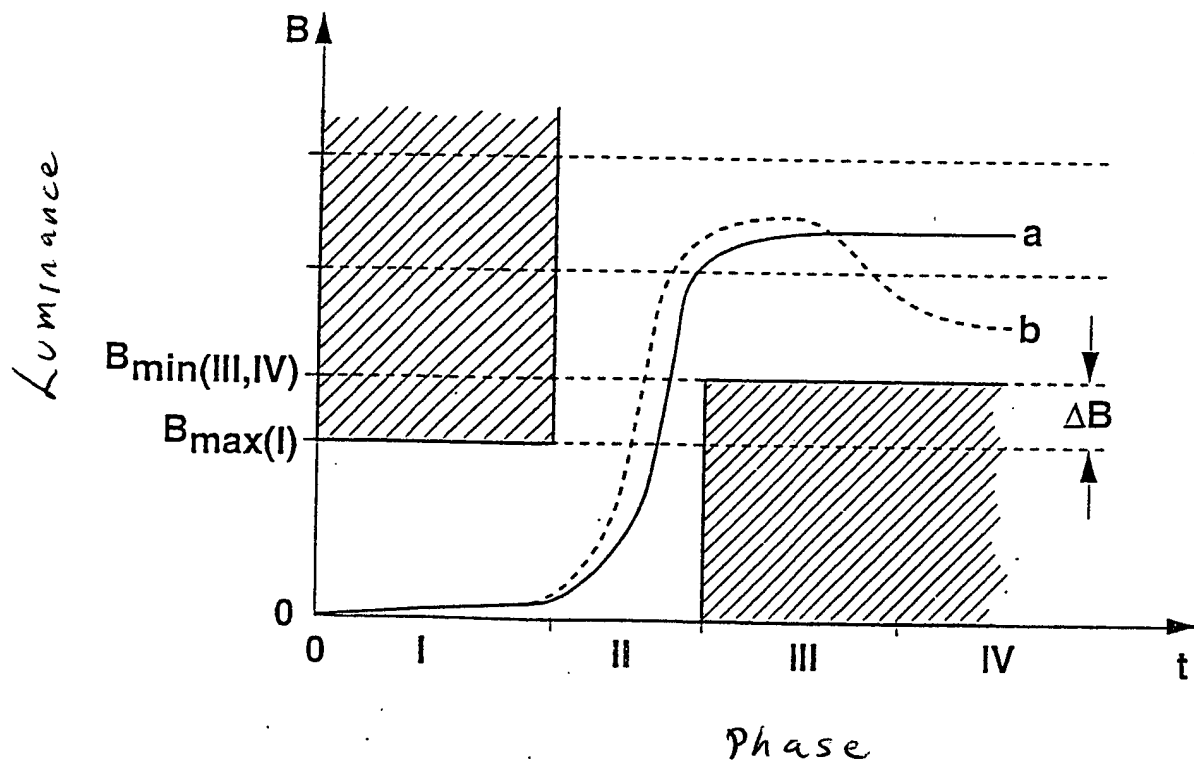
The arrangement for carrying out this method comprises a burning radiation detector (1) which is disposed outside of a burning chamber (12) and is directed to a flame (10), a signal processing unit (13) which generates a flame monitoring signal for burner control (15) and provides an actual value signal via a further line to a controller (14) for air or fuel supply and an air supply or fuel actuating member (16), which is connected to the controller (14), for setting a burner (17).

DE 31 08 409 C3 discloses an automatic flame guard for measuring the ultraviolet light portion and a further light portion with a radiation receiver which comprises a UV tube

and a photo transistor and two separate measuring channels, wherein the first measuring channel measures the UV light portion and the second measures the further light portion which is substantially in the IR wavelength region, wherein the measuring channels are connected to a maximum selection switch disposed in the region of the radiation emitter via one frequency voltage transformer (39,57) each, which are connected to a switching amplifier (5) which is spatially separated from the radiation receiver (1) via a connecting line.

DE 12 69 282 discloses an automatic flame guard for heating systems which are supplied with liquid, powdery or gaseous fuel from a motor-driven supply pump and comprise an electric ignition means. The automatic flame guard comprises a photo-electric resistance cell, an electromagnetic relais (flame relais) whose coil is switched in parallel to the resistance cell and which controls the ignition means and the engine, a motor circuit for keeping the normal burning operation, a current limiting resistance disposed in series with the flame relais coil and the resistance coil, a delaying element (3;3-1) which is connected in series with the resistance cell (2) which loses completely or partially its resistance only after a certain time from switching on the heating system, and a contact (4) disposed in a short-circuit branch for the delaying element which is closed when the flame relais is not excited or has tapered off.

DE 24 29 289 A discloses a burner control comprising a light-sensitive resistance element which monitors the flame. This burner control comprises a controllable semiconductor (15) in a control and/or indicator circuit whose control electrode is connected to an anti-parallel circuit of two diodes (18), a trigger circuit (19 to 28) which has a series connection between a capacitor (20) and a resistance (19) between the burner feed voltage, wherein the common connection point between capacitor (20) and resistance (19) is connected to the anti-parallel circuit of the two diodes (18). A network (19) is connected in parallel to the capacitor (20) which has a programmable unijunction transistor (22) wherein the light-sensitive resistance element (28) is disposed between the control electrode (26) and the cathode (24) of the unijunction transistor (22). The network which is connected in parallel to the capacitor (20) comprises a diode rectifier bridge (21) for feeding the unijunction transistor (22) and the light-sensitive resistance element (28).

**Fig. 1****Fig. 2 (Prior Art)**

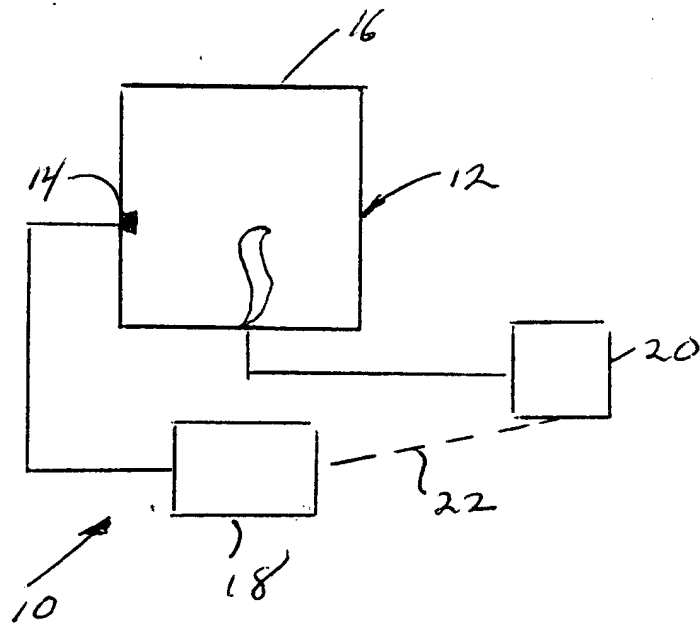


FIG 3